Aug 10th, 12:00 AM

Perceived Business Objectives for Adopting Blockchain Technology: A Value-Focused-Thinking Approach

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Emergent Research Forum (ERF)

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Abstract

Blockchain is a distributed, decentralized digital ledger that have the promise of shifting trust from organizations towards the algorithms. Blockchain technology has captured the attention of business and IT leaders, as well as academic researchers, for its potential impact on business transforming. While the extant literature on Blockchain has focused on addressing its technical features, and the different application areas, little is known about its potential business value and the fundamental objectives behind organizations' decisions to adopt Blockchain. In this paper, through using Value-Focused-Thinking approach, we aim to enhance our understanding of the fundamental perceived business values, and related objectives, behind adopting Blockchain technology by organizations. The output of the study is a means-ends network of the perceived fundamental and means business objectives for adopting Blockchain by organizations. The findings of this study can serve as a foundation for future research on Blockchain business value and accounting information technology. It can also provide business and IT leaders with a tool to help them in making their decisions about Blockchain initiatives in their organizations.

Keywords

Blockchain, Business Value, Business Objectives, Value-Focused-Thinking, Means-Ends network.

Introduction

The business value of IT is defined as *"the organizational performance impacts of information technology at both the intermediate process level and the organizational-wide level, and comprising both efficiency impacts and competitive impacts"* (Melville et al. 2004). The argument as to whether IT creates value or not has long been debated and is now essentially outdated since a plethora of previous literature has already demonstrated the different types of social and economic values that can be brought about through the adoption and use of IT (Brynjolfsson and Hitt 1996; Devaraj and Kohli 2003; Melville et al. 2004; Sabherwal and Jeyaraj 2015; Setia et al. 2008). Prior literature also suggested that the value brought about by IT can be manifested in several different ways including process improvement, productivity gains, increased consumer surplus, profitability enhancement, or improvements in supply chains or innovation at the inter-organizational level (Kohli and Grover 2008; Sabherwal and Jeyaraj 2015). Prior literature has also demonstrated that the dimension and extent of IT value depends on a variety of factors such as the type of IT, industry, and organization structure (Brynjolfsson and Hitt 2000; Cooper et al. 2000; Sabherwal and Jeyaraj 2015). Therefore, we focus in this study on the specific perceived business value associated with Blockchain technology as a specific type of IT.

One of the most important aspects of Blockchain is that trust is established not by powerful intermediaries such as government agencies, banks, or technology companies, but rather automatically through mass collaboration between different users or business partners (Labazova et al. 2019; Mehrwald et al. 2019). This is thought to ensure integrity and trust between strangers and prevent any illegitimate behaviors (Mehrwald et al. 2019; Tapscott and Tapscott 2016a). While most of the hype surrounding the value of Blockchain has focused on its role in transforming financial services, there is a belief among business leaders that this transformational impact may spread to government, business, and society (Tapscott and Tapscott 2016a). Having a searchable globally-shared ledger of all business transactions in a given industry, or business domain for example, is thought to be advantageous because it will dramatically improve

transparency and decrease the search cost, reducing in that existing information asymmetry (Tapscott and Tapscott 2016a, 2016b, 2017). Smart contracts, on the other hand, are thought to lower the contracting costs among business partners while enforcing contracts and completing payments eliminating in that the need for intermediaries (Tapscott and Tapscott 2016a, 2016b, 2017). Autonomous agents, which are bundles of smaller smart contracts that are acting together like a richer application, hold the potential of eliminating intermediaries, reducing the coordination costs, and perhaps even leading to highly distributed enterprises or business networks with minimum or no management at all (Tapscott and Tapscott 2016a, 2016b, 2017). From an accounting and assurance standpoint, Blockchain is thought to be enabling a verifiable, transparent, and real-time accounting ecosystems (Dai and Vasarhelyi 2017). Dai and Vasarhelyi (2017), for example, demonstrated how Blockchain can have the potential to transform existing auditing practices by bringing in more accurate, and timely, automatic assurance systems.

Gartner estimated the business value-add of Blockchain to grow to more than 176 billion USD by 2025, and to exceed 3.1 trillion USD by 2030 (Lovelock et al. 2017). However, only very few Blockchain projects have already been fully launched yet, except for few industries (Furlonger and Valdes 2017). Most Blockchain projects are still in the proof of concept stage and almost none of them are already completed to judge the real attained business value associated with adopting this technology (Furlonger and Valdes 2017). It is an almost certainty that no Blockchain businesses are at this point even profitable, let alone producing real business value (Furlonger and Valdes 2017). This makes conducting research to confirm the value of Blockchain technology to organizations almost impossible at this early stage. It is very important to state clearly here that this study is not an attempt to confirm the attained business values associated with adopting Blockchain technology since the majority of Blockchain projects are still in the piloting phase. This study is rather a step forward to extend existing knowledge about the perceived potential business value for adopting Blockchain by organizations. While we mention values when explaining the Value-Focused-Thinking approach the study is trying to capture what is perceived as a potential business value for adopting Blockchain, but not confirming whether those business values are being attained or not after the adoption since it is not possible to confirm that at this early stage of the technology adoption.

Research Methodology and Initial Findings

Value-Focused-Thinking is a method introduced by Ralph Keeney in 1992 to help decision makers in identifying the right values behind making their decisions (Keeney 1992). This approach, Keeney demonstrates, can be used to direct information collection, uncover hidden objectives, improve communication, facilitate collective decision making, and guide strategic thinking (Keeney 1992, 1996, 1999a, 2008). According to Keeney (2008) there are two concepts of value-focused thinking that are important to identify. First, values, which are essentially a list of all that are cared about to be achieved without any constraints placed on how that information is described or organized. The main concern here is to identify what is valued out of the heads of the executives who are engaged in the situation and understand better the decision and why it is worthy of thought. Second, objectives, which articulate the stated values in a coherent manner and are best stated using combinations of a verb and an object. Objectives can also be classified further into fundamental objectives (also called ends objectives) and means objectives (Keeney 1992, 1996, 1999b, 2008). Fundamental objectives are meant to describe the fundamental reasons for making the decision, and should collectively describe all the potential consequences that must be considered when evaluating alternatives (Keeney 2008). Means objectives on the other hand are those objectives whose achievement is thought to influence the achievement of the fundamental objectives (Keeney 2008).

VFT approach has already been used by several IS researchers. Keeney (1999b) for example used VFT to study the value of Internet commerce for customers, building a network of fundamental and means objectives organized into twenty five categories that describe the bottom line consequences of concern to customers. Sheng et al. (2005) used VFT to study the strategic and organizational implications of mobile technology, building a network of fundamental and means objectives for adopting and using mobile technology in the organization. Dhillon and Torkzadeh (2006) used VFT to identify the fundamental objectives for information systems security and the means objectives of achieving them in the organization. Mishra (2015) also used VFT to study information security but with a focus on identifying organizational security governance objectives organized into twenty-three categories. Finally, Pedron et al. (2016) used

VFT approach to identify the strategic objectives of adopting and using customer relationship management CRM systems in business organizations.

In this study, we use VFT to a) identify the fundamental objectives of adopting Blockchain technology by organizations, b) identify the means objectives to achieving them, and c) build the relationship network of fundamental and means objectives, also known as means-ends network.

According to Keeney (2018), who is the founder of the Value-Focused-Thinking approach, organizational values can be extracted in two ways: a) direct extraction through discussions with executives who have major responsibilities related to the specific organizational functions that are the subject of the study, or b) indirectly by studying the different types of materials that the company publishes and which contain documented information about the values related to establishing the organization's objectives (Keeney 2018). Figure (1) summarizes the steps that we are following when conducting our research.

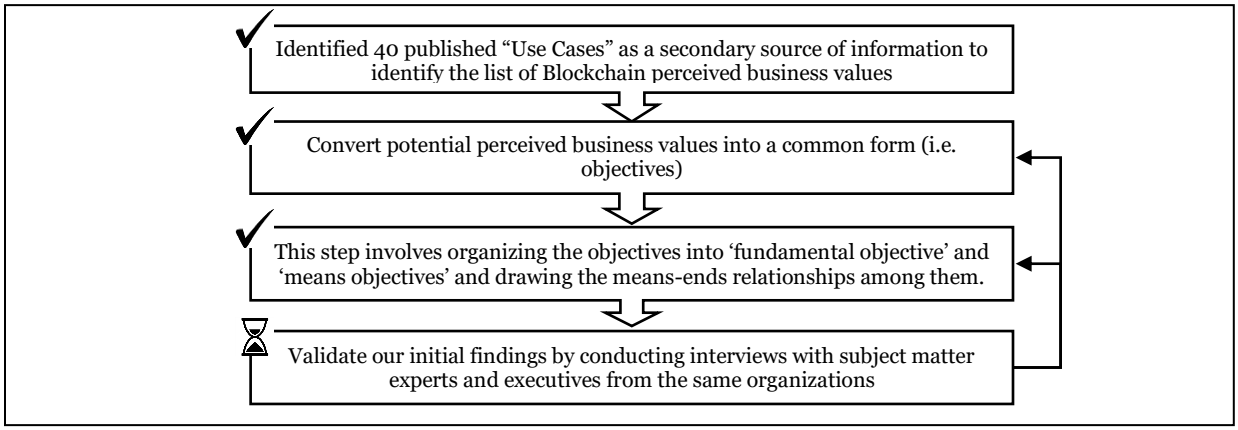

Figure 01. Research Plan

It is very important to mention here that using the secondary data (i.e. published case studies), is nothing but the initial stage of the study. Even though the use of such secondary data was already validated (i.e. by contacting the methodology founder Ralph Keeney, and through ensuring the rigorous process through which these cases are published and which guarantee both the validity and credibility of the content) it is important to mention that using these data sources is just the initial stage in our study. Using these data is not meant to be replacing the primary data collection neither to be the final step in the study. This step is just meant to build the initial core of the means-ends objectives network which will be validated and modification later in the future through direct interviews with key stockholders in the organizations adopting Blockchain.

Our initial analysis suggested six fundamental perceived objectives (end objectives) and twenty-one means objectives for adopting Blockchain by organizations. Fundamental objectives are to increase trust, enhance regulatory compliance, tighten security, increase efficiency, increase effectiveness and enhance resource allocation. Figure 2 depicts the means-ends Blockchain objectives network.

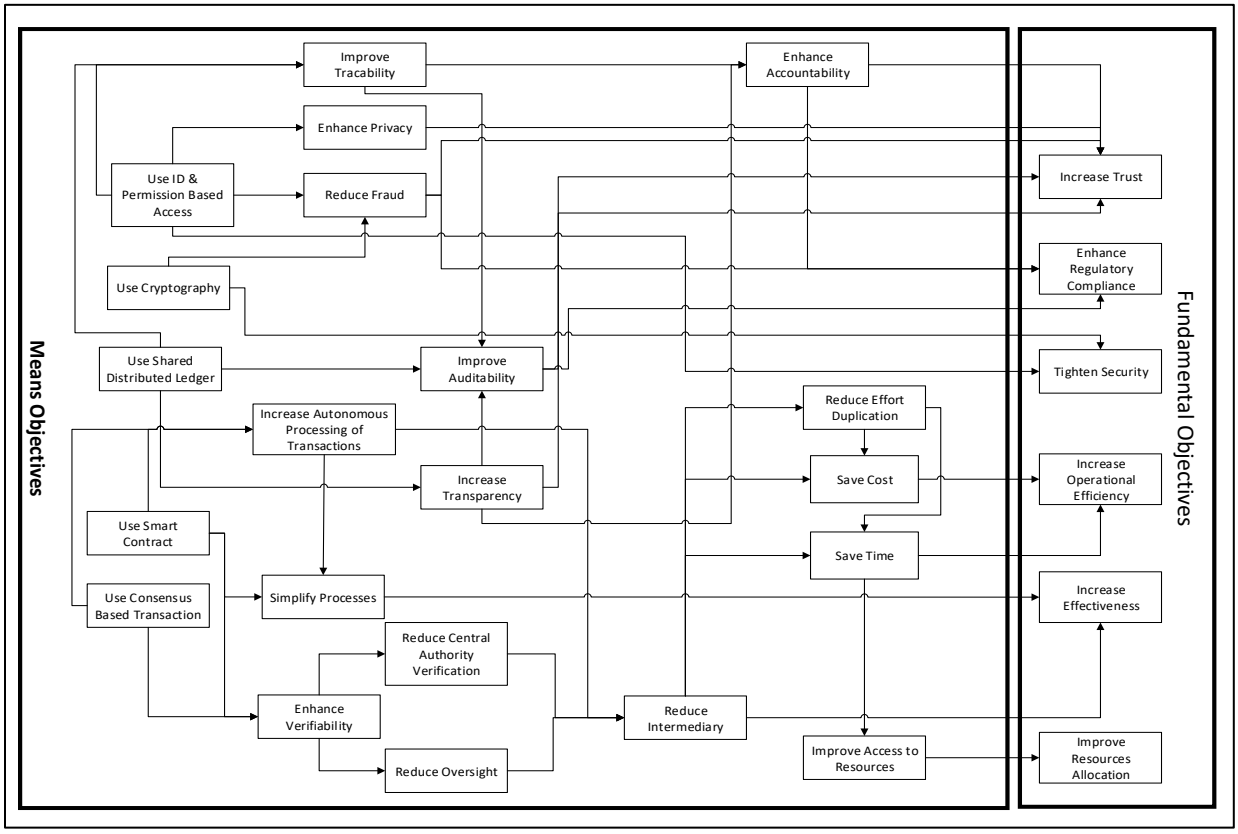

Figure 02. Means-Ends Blockchain Objectives Network

Conclusion, Limitations and Future Work

To enhance our understanding of the perceived business value of Blockchain by organizations, we used Value-Focused-Thinking approach. The initial findings of our study suggested six fundamental objectives and twenty-one means objectives for adopting Blockchain by organizations. To extract these perceived business values and build the means-ends objectives network we utilized secondary data that came in the form of use cases, press releases, and customer references. While our extraction and organization process were rigorous, we still cannot claim the completeness of our findings since we only relied on secondary data. Our complete research plan includes conducting interviews with business executives and subject matter experts in charge of Blockchain initiatives in their organizations to verify the completeness and validity of our initial findings. We will be reporting on the findings of the next step of our research in a future complete research paper. However, with our initial findings, this study provides several theoretical and practical contributions. From an academic standpoint, this study serves as a bridge to connect three interrelated areas including Blockchain, accounting information systems and Business value of IT. Researchers can build on this study to understand, explaining, and further study empirically the implications of Blockchain on current accounting practices and the related business value of Blockchain technology. From a practical perspective, the fundamental and means objectives network of Blockchain can serve as a framework for business and technology leaders to plan their Blockchain initiatives to transform their business practices in general, and their current accounting and auditing practices in particular.

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